

New Bicycle and Pedestrian Facilities: A Guide for Driving Instructors

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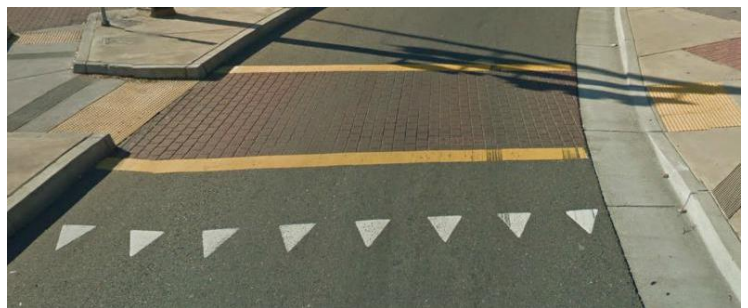
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General

Yield lines ("shark's teeth")

These are a marking used to inform drivers of the point where they need to yield and give priority to conflicting vehicle or pedestrian traffic at an intersection or roundabout controlled by a yield sign. Yield lines consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made. Yield lines indicate the point behind which vehicles are required to yield in compliance with a YIELD sign or a Yield Here to Pedestrians sign (MUTCD).

Rationale: Drivers who yield too close to crosswalks on multi-lane approaches place pedestrians at risk by blocking other drivers' views of pedestrians.



Laws

➤ **3-Foot Passing Law**

Motorists must give a minimum of 3 feet when passing a bicyclist. It is legal to cross the center line to allow for 3 feet as long as it is safe to do so and does not interfere with incoming traffic. If there is oncoming traffic, motorists should slow down and wait until traffic clears to pass.

Text of the laws:

CGS § 14-232. Passing. The driver of a vehicle overtaking another vehicle proceeding in the same direction shall pass to the left thereof at a safe distance and shall not again drive to the right side of the highway until safely clear of the overtaken vehicle; and (2) the driver of an overtaken vehicle shall give way to the right in favor of the overtaking vehicle and shall not increase the speed of his vehicle until completely passed by the overtaking vehicle. *For the purposes of this subsection, "safe distance" means not less than three feet when the driver of a vehicle overtakes and passes a person riding a bicycle or an electric bicycle.*

CGS § 14-234b. Determination of no-passing zones. Overtaking and passing in no-passing zones. The driver of a vehicle may overtake and pass, in a marked no-passing zone, pedestrians, parked or standing vehicles, animals, bicycles, mopeds, scooters, vehicles moving at a slow speed, or obstructions on the right side of the highway, provided such overtaking and passing may be conducted safely, with adequate sight distance and without interfering with oncoming traffic or endangering traffic.

➤ **Vulnerable User Law**

Motorists are required to use care when driving near vulnerable users, such as bicyclists and pedestrians. If they fail to do so and their actions lead to the injury or death of a vulnerable user, the motorist may be fined.

Text of the law:

CGS § 14-300i. Vehicle operator to exercise reasonable care when near vulnerable user on a public way. (a) As used in subsection (b) of this section, (1) "vulnerable user" means: (A) a pedestrian; (B) a highway worker; (C) a person riding or driving an animal; (D) a person riding a bicycle or an electric bicycle; (E) a person using a skateboard, roller skates or in-line skates; (F) a person operating or riding on an agricultural tractor; (G) a person using a wheelchair or motorized chair; and (H) a person who is blind and such person's service animal, and (2) "public way" includes any state or other public highway, road, street, avenue, alley, driveway, parkway or place, under the control of the state or any political subdivision of the state, dedicated, appropriated or opened to public travel or other use.

(b) Any person operating a motor vehicle on a public way who fails to exercise reasonable care and causes the serious physical injury or death of a vulnerable user of a public way, provided such vulnerable user has shown reasonable care in such user's use of the public way, shall be fined not more than one thousand dollars.

➤ **Move Over Law**

The "Move Over" law requires a driver traveling on a highway with at least two lanes in each direction, when traveling in the lane next to the shoulder, lane, or breakdown lane of a highway, and approaching an emergency vehicle or a stationary vehicle, to immediately slow to a reasonable speed below the posted speed limit and move over one lane, unless doing so would be unreasonable or unsafe. Emergency vehicles include any vehicle

with activated flashing lights operated by emergency medical services, fire departments, and police. It also includes wreckers (tow trucks) and any state, municipal, state bridge and parkway authority, or utility company maintenance vehicle. This law was amended in 2017 to include non-emergency vehicles that are stopped on a highway as well.

Text of the law:

CGS § 14-283b. Motor vehicle operator required to move over when approaching stationary emergency vehicle. Any operator of a motor vehicle on a highway when approaching one or more stationary emergency vehicles located on the shoulder, lane or breakdown lane of such highway shall (1) immediately reduce speed to a reasonable level below the posted speed limit, and (2) if traveling in the lane adjacent to the shoulder, lane or breakdown lane containing such emergency vehicle, move such motor vehicle over one lane, unless such movement would be unreasonable or unsafe.

Signals

➤ Rectangular rapid flash beacons (RRFB)

RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. They enhance safety by reducing crashes between vehicles and pedestrians at unsignalized intersections and mid-block pedestrian crossings by increasing driver awareness of potential pedestrian conflicts. (FHWA)

Rationale: shown to increase driver yielding behavior at crosswalks significantly when supplementing standard pedestrian crossing warning signs and markings.



➤ **High-intensity activated crosswalk beacons (HAWKS)**

A HAWK beacon (High-Intensity Activated crossWalk beacon) is a traffic control device used to stop road traffic and allow pedestrians to cross safely. It is officially known as a Pedestrian Hybrid Beacon (PHB). The purpose of a HAWK beacon is to allow protected pedestrian crossings, stopping road traffic only as needed. Where standard traffic signal requirements prevent the installation of standard three-color traffic signals, the HAWK beacon provides an alternative.

HAWK educational video from Stamford, CT: <https://youtu.be/mwnpDPsHdOU>

PEDESTRIANS		DRIVERS	
SEE THIS	DO THIS	SEE THIS	DO THIS
	PUSH THE BUTTON		DRIVE Always look for people who plan to cross.
	STOP & WAIT for the WALK signal.	<small>FLASHING</small>	SLOW DOWN A person has activated the push button.
	START CROSSING Always watch for cars.		PREPARE TO STOP
	FINISH CROSSING		STOP for pedestrian. (Do with any signal that means STOP)
		<small>FLASHING</small>	STOP FIRST Proceed with caution if no people are present.

City of Phoenix, AZ

➤ **Concurrent signals**

Historically, CTDOT and most municipalities have used exclusive pedestrian phasing at signalized intersections. An exclusive pedestrian phase allows pedestrians to cross the street when vehicles are stopped on all approaches. This is changing in Connecticut, as the DOT switches appropriate intersections to concurrent pedestrian phasing.

In concurrent pedestrian phasing, pedestrians cross in the same direction and *at the same time* as parallel traffic, who have a green light.

This type of pedestrian phasing requires that drivers and pedestrians be more aware of potential conflicts. Crashes that do occur under concurrent phasing tend to involve pedestrians and turning vehicles. Turning speeds tend to be lower than through vehicle speeds, reducing the severity of the collision.



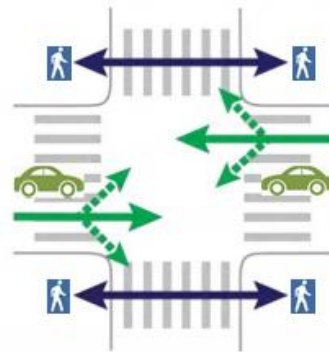
Rationale: Exclusive pedestrian phasing has been shown to reduce the overall number of pedestrian crashes at an intersection. However, a UConn study published in 2017 has shown that while the overall number is reduced, crashes involving pedestrians at intersections with exclusive pedestrian phasing tend to be more severe. Pedestrians are sometimes unwilling to wait through all the vehicle phases to cross during the pedestrian phase, so they cross during the “do not walk” phase, creating conflicts with through vehicles moving fast. Concurrent phasing allows more opportunities for pedestrians to cross legally, and it reduces delay for both pedestrians and vehicles. (UConn Technology Transfer Center)

To increase pedestrian safety, concurrent pedestrian signals also utilize a leading pedestrian interval (LPI), which is a head start for pedestrians, giving them the walk signal 3-7 seconds before the light turns green. This allows pedestrians to establish themselves in the crosswalk before traffic begins to move.

How it works:

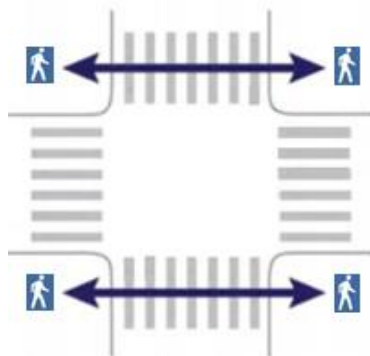
Concurrent without LPI

The walk signal for pedestrians typically begins at the same time as the green light for parallel traffic. Turning traffic yields to pedestrians entering or in the crosswalk.

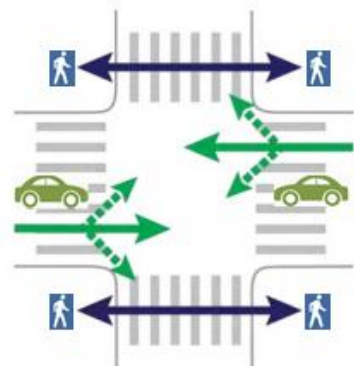


Concurrent with LPI

**Phase 1:
Pedestrians only**
Pedestrians are given a 3–7 second head start entering the intersection.



**Phase 2:
Pedestrians and motorists**
Motorists are provided a green light. Turning traffic yields to pedestrians entering or in the crosswalk.



Bicycle Infrastructure

➤ **Bike boxes**

A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. (National Association of City Transportation Officials)

Rationale: Increases visibility of bicyclists; reduces signal delay for bicyclists; helps prevent ‘right-hook’ conflicts with turning vehicles at the start of the green indication; provides priority for bicyclists at signalized bicycle

boulevard crossings of major streets; groups bicyclists together to clear an intersection quickly, minimizing impediment to transit or other traffic; pedestrians benefit from reduced vehicle encroachment into the crosswalk; facilitates bicyclist left turn positioning at intersections during red signal indication; facilitates the transition from a right-side bike lane to a left-side bike lane during red signal indication (these last two only apply to bike boxes that extend across the entire intersection).



➤ Sharrows

Shared lane markings or “sharrows” guide bicyclists to the best place on the street to ride and help motorists expect to see and share the lane with bicyclists (Seattle DOT). They are typically only on roads with speed limits below 25 MPH.

Rationale: Among other benefits shared lane markings reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance. (National Association of City Transportation Officials)

